Efficacy of Tridax Procumbens in Restoring Tissue Architecture and Functions with A Case Report – An Experimental Study in Homeopathy

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ABSTRACT

BACKGROUND:

Tridax procumbens also known as "coat buttons" is a perennial plant from the Asteraceae family. Traditionally it is used for the treatment of bronchial catarrh, dysentery, malaria, high blood pressure and to check hemorrhage from cuts, bruises and wounds. The great variety of secondary metabolites present in the plant are tannins, alkaloids, saponins, flavonoids, phenols, steroids anthocyanins, proteins, amino acids and carbohydrates have been a great source of important pharmaceutical compounds. Tridax have been used from ancient times to treat wounds, skin diseases and to stop blood clotting. It possesses anticoagulant, anti-inflammatory, antioxidants and anticancer, immunomodulatory, insecticidal, antihelmintic cardiovascular, antiseptic, antimicrobial, wound healing properties.

INTRODUCTION:

Tridax procumbens commonly known as coat button or Mexican Daisy, is a flowering plant that has been widely recognized for its medicinal properties. For centuries, it has been utilized in traditional medicine system such as ayurveda and traditional African medicine, to treat various ailments. One of the notable benefits of tridax procumbens lies in its potential to promote wound healing.[2]

Tridax procumbens demonstrates significant antimicrobial activity against a wide range of bacteria, including both gram positive and gram negative strains. By inhibiting the growth of pathogenic microorganisms, it reduces the risk of infection at the wound site, thereby facilitating optimal wound healing conditions. The antioxidant compounds found in tridax procumbens scavenge harmful free radicals, which are known to impair the healing processes. By neutralizing these free radicals, the plant promotes a favorable cellular environment for tissue regeneration and accelerates wound closure. It's anti-inflammatory, antimicrobial, and antioxidant properties work synergistically to enhance the various stages of wound healing process.[2]

Wound healing is a complex biological process that involves a series of events aimed at repairing damaged tissue and restoring the structural integrity of the skin. Impaired wound healing can result in chronic wounds, infections, and other complications. The anti-inflammatory properties of tridax procumbens help reduce inflammation at the wound site, preventing excessive immune responses that can impede the healing process. By controlling inflammation, this plant aids in the initiation of subsequent wound healing stages, such as cell migration, proliferation, and tissue remodeling.[2]

MATERIALS AND METHODS:

Literature search was done from standard homoeopathy books and search databases like Google Scholar, reference articles and homoeopathy websites.

RESULTS: Summary of the experimental study: A 54 year old male who had approached with complaints of Chronic, non healing, post surgical wound over the right dorsal aspect of foot had been treated with tridax procumbens lotion as external application showed

significant reduction in symptoms and faster wound healing rate. 30 Cases that received the same treatment in the hospital also suggested this to be a viable treatment option for cellulitis.

CONCLUSION: Tridax procumbens is a versatile herb with a range of medicinal properties including anti-inflammatory, anti-microbial, anti-oxidant and wound healing properties. Further research is needed to fully explore its potential benefits and applications.

KEYWORDS: Wound healing, External Application, Injury Medicine, Coat Button, Tissue Regeneration.

INTRODUCTION:

REVIEW OF LITERATURE:

Tridax procumbens Linn commonly known as "Ghamra" & in English popularly known as coat buttons because of the resemblance of its flowers with coat buttons belonging to Asteraceace family was introduced in China in 1940.

In Shodhal Nighantu two varieties of Bhringraja are described as Pita Bhringraja (Yellow flowered) & Sveta Bhringraja (white flowered). Yellow types denoted as Avanti & described as Wedalia calendulacia & white flowered denoted as Jayanti & described as Tridax procumbens by Acharya Shodhal.

In Nighantu Adarsha three varieties are described as black, red & white coloured along with description of Pardesi Bhringaraja called as Tridax procumbens.

So, though there is a little controversy in our Nighantu granthas but collectively they have accepted Tridax procumbens as a variety of Eclipta alba. In modern texts also, all the characters of Tridax procumbens are similar to that of white flowered (3 ray florets) procumbent herb which we are considering as Sveta/ Pita/ Sveta-pita Bhringraja i.e., Bhringaraja with creamish yellow flowers.

Tridax procumbens is a herb present throughout India & is employed as indigenous medicine for variety of ailments. It is found to possess significant medicinal properties against blood pressure, headache, stomach ache, wound healing, diarrhoea, dysentery etc. It also prevents hair fall & its leaves & flowers possess antiseptic, insecticidal & parasiticidal properties. The present review is aimed to notice biological & medicinal activity of Tridax & introducing such unnoticed herb for inclusion in Ayurveda Medica to serve the ailing mankind.[4]

Classification:

Kingdom:- Plantae- Plants
Sub-kingdom:- Tracheobionta- Seed Plants
Division:- Magnoliophyta- Flowering plants
Class:- Magnoliopsida- Dicotyledons
Sub class:- Asteridae
Order:- Asterales
Family:- *Asteraceae*
Genus :- *Tridax* L-Tridax

Species:- *Tridax procumbens (L)* coat button.

Properties

Ayurvedic Properties of T. Procumbens are-

Rasa	-	Kashaya, Amla, Tikta
Guna	-	Guru, Snigdha
Virya	-	Seeta

Vernacular Names:

Region/language		Vernacular names
English	-	*Coat button/Tridax daisy*
Hindi	-	*Ghamra*
Sanskrit	-	*Jayanti Veda*
Oriya	-	*Bishalya Karani*
Marathi	-	*Dagadi Pala*
Telugu	-	*Gaddi Chemanthi*
Tamil	-	*Thata Poodu*
Malayalam	-	*Chiravanak*
Spanish	-	*Cadillip Chisaca*
French	-	*Herbe caille*
Chinese	-	*Kotobukigiku*
Latin	-	*Tridax Procumbens* Linn.

Botanical Description:

Habitat:

The plant is native of tropical America & naturalized in tropical Africa, Asia, Australia & India. It is a wild herb distributed throughout India. It's widespread distribution & importance as a weed are due to its spreading stem & abundant seed production.

Tridax procumbens is a perennial plant or herb with short, hairy blade like leaves. It is semi prostate, annual creeper herb which ascends upto a height of 30-50 cm. Its stem is branched, sparsely hairy with rooting at nodes. It is tap rooted & on attempt to pull out plant breaks.[4]

Morphological Description:

Leaves- Leaves are simple, opposite, entire, hairy, rarely pinnatisect, exstipulate and shortly petioled. Leaf shape is lanceolate-ovat e with wedge shaped base and acute apex. It is 3-7 cm long 45 cm with long irregularly toothed margin.

Flowers- It flowers throughout the year in long peduncled heads. Flowers are small, tubular, whitish- yellow with hairs. Inflorescence is capitulum. It bears two types of flower-ray florets & disc florets with basal placentation.

Disc florets are corolla narrow- campanulate 8 mm long, bright yellow & hairy at the top with spreading pappus of plumose hair.

Ray florets: 5 or 6 female with narrow corolla tube & brown ligulate limb, white or pale yellow in colour.

Fruit- Fruit is a hard achene covered with stiff hairs & having a feathery, plume like white pappus at one end. The plant is invasive in part because it produces so many achenes & each achene can catch the wind in its pappus & can be carried to some distance. Achenes are 1.5-2.5 mm long X 0.5-1 mm in diameter.

Seeds- Seeds have pendulous embryo, endosperm is absent.

Stem- Stem is herbaceous, cylindrical, decumbent & branched.

Root- *T. procumbens* has a tap root system.

Part Used- Whole plant (leaf, stem & flowers) is used to cure different ailments.[4]

Chemical Constituents:

Flavanoid (procumbenetin) isolated from the aerial parts of *Tridax procumbens* has been characterized as 3, 6 –dimethoxy-5, 7, 2', 3', 4'- pentahydroxy flavone 7- 0-β-D-glucopyranoside on the basis of spectroscopic techniques & by chemical means. Methyl 14 oxoacagaecunoate, methyl 14- oxononacosanoate, 3-methyl-non adecylbenzene, hepatocosanyl cyclohexane carboxylate, 1- (2, 2, dimethyl- 3-hydroxy propyl)-2- isobutyl phthalate, 12- hydroxytetracosa-15-one, 32-methyl-30-ozotetraatria cont-31-en-1-ol along with β amyrin, β amyrone, fucosterol & sitosterol, arachidic, behenic, lauric, linoeic, linolenic, myristic, palmitic & stearic acids are other constituents.

It is also a potential source of the protein supplements & pro vitamin A (carotenoid).[4]

Folk Practice

Though we don't get a description of T. *procumbens* in our *Samhita Granthas* and even *Nighantus* have described it suspiciously but still its medicinal uses are being practiced by folklore for the past ages. Some of them are as follows:

1. In village side it has been used as a medicine to stop hemorrhage from cuts and bruises as anticogulant.
2. In Nigeria *Tridax* is traditionally used in the treatment of fever, typhoid fever, cough, asthma, epilepsy & diarrhoea.
3. In west African sub region & tropical zone of the world, traditional medical practitioners & native people of these area uses its leaves as a remedy against conjunctivitis.
4. Traditional/Folk Use in India Telangana Sate : Local healers and tribal communities in Telangana have used Tridax procumbens leaves as a paste or juice applied topically to the site of the scorpion sting. It is believed to help reduce pain, swelling, and inflammation associated with the sting.[4]

DEFINITION OF CELLULITIS:

It is a non suppurative inflammation spreading along the subcutaneous tissue and connective tissue planes and across intercellular spaces.[6]

ETIOLOGY:

Cellulitis include any culprit that could cause a breakdown in skin barrier such as skin injuries, surgical incisions, intravenous site punctures, fissures between toes, insect bites, animal bites and other skin infections.[3]

RISK FACTORS:

Patients with comorbidities such as diabetes mellitus, venous insufficiency, peripheral arterial disease and lymphedema are at higher risk of developing cellulitis.[3]

PATHOPHYSIOLOGY:

The organism usually gains access through a wound or scratch or following surgical incision. There is a wide spread swelling and redness at the area of inflammation but without definite localization. Initially the site of inoculation becomes red. Gradually the skin swells and becomes shiny. In severe infections blebs and bullae form on the skin. Central necrosis may occur at a later stage.[6]

PREPARATION OF MOTHER TINCTURE:

MATERIAL AND METHODS:

MATERIAL

Plant material: leaves of Tridax procumbens.

Principle: The tincture is made by combining 2 parts by weight of alcohol with one part of the plant material or its part.

REQUIREMENTS:

1. INGREDIENTS:

Selected drug substance (Tridax procumbens leaves for the tincture).

Strong alcohol.

2. UTENSILS AND APPARATUS:

Wooden chopping board and knife

Porcelain mortar and pestle

Horn made spatula

Sterilized linen cloth

Clean small beaker

Glass stoppered phial

Another clean phial with the non porous velvet cork

Filter paper

Balance with weight box

Writing materials (pen, paper, gums, scissors etc.)

3. PROCEDURE:

- The fresh leaves of Tridax procumbens are cut into small pieces using a polished steel knife on a clean chopping board, then crushed to a pulp using a mortar and pestle.
- The crushed pulp is weighed and placed in a glass jar. Twice the weight of strong alcohol is added.
- Initially, a sixth part of the alcohol is used to moisten the pulp. The moistened drug is transferred into a stoppered bottle, and the remaining alcohol is added.
- The mixture is left to stand for 8 days in a cool dark place.
- After this period, the tincture is poured off, strained through new linen, cloth and filtered.
- Finally, it is poured into a clean phial with a high-quality non-porous velvet cork.[5]

IMAGES FOR THE PREPARATION OF TRIDAX PROCUMBENS Q IN CHRONOLOGICAL ORDER


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FOR DOMESTIC USE ONLY
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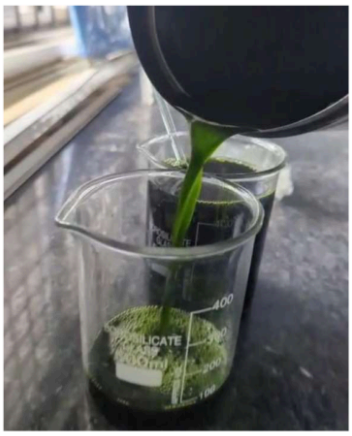


PREPARATION OF EXTERNAL APPLICATION:

Lotion-

Definition: These are liquid suspensions or dispersions in aqueous medium, used as external applications over the affected parts of the body.

Preparation:

A. Principle:

1 part of the requisite mother tincture and 9 parts of purified water are mixed thoroughly.

B. Requirements:

1. Ingredients:
   (a) Required amount of mother tincture
   (b) Required quantity of purified water
2. Appliances
   (a) One clean round phial
   (b) One new non -porous velvet cork
   (c) Balance with weight box
   (d) Weighing bottle
   (e) Pen, labeling paper, Pasting gum, scissors etc.

C. Procedure:

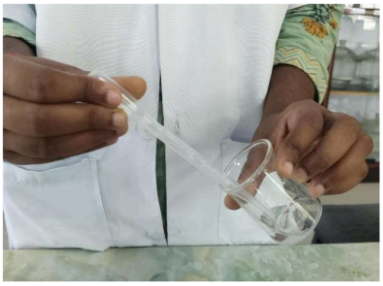
The proper amount of purified water is taken in a clean round phial, and the required amount of mother tincture is poured over it. The phial is corked and shaken well. The mixture is shaken vigorously till its color becomes uniform.[7]

Precautions:

In the label of the phial containing a lotion, 'shake well before use' and 'for external use only' must be exhibited with the direction of use.

Other Uses:

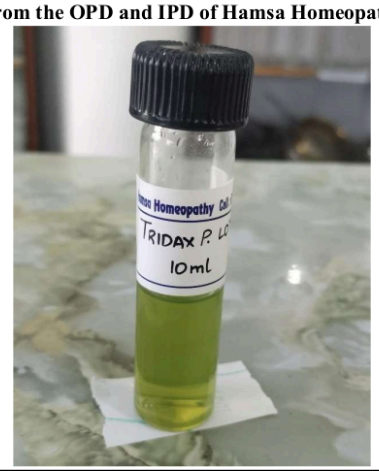
Used in bruised pain without bloodshed arising from falling, injuries, blows etc.




PREPARATION OF TRIDAX PROCUMBENS LOTION:

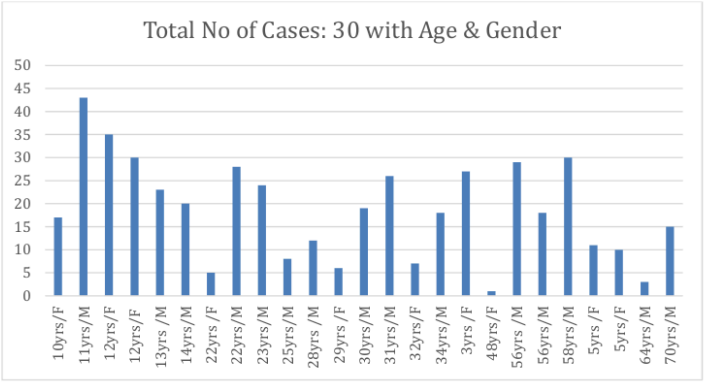
EXPERIMENTAL STATISTICAL DATA OF PATIENTS:

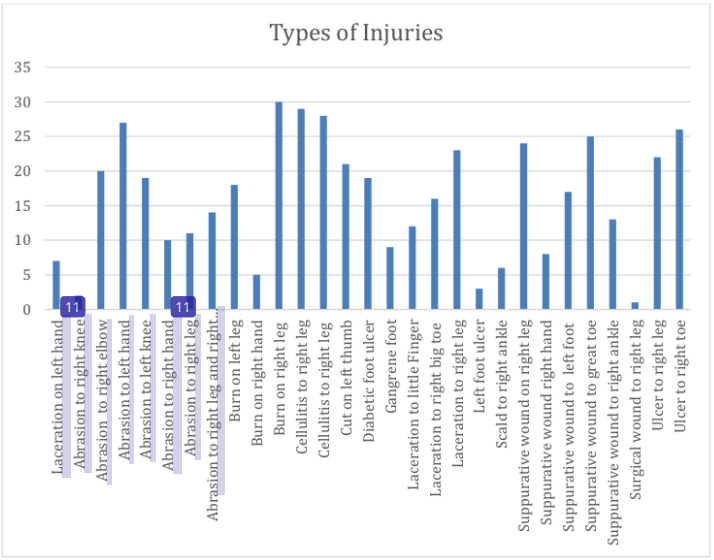
Cases have been taken from the OPD and IPD of Hamsa Homeopathy Medical College



Hospital & Research Centre.

In all these cases, Tridax procumbens lotion was used as an external application.





CASE REPORT:

A 54 year old male approached with diagnosis of cellulitis on 18/01/2024 with the complaints of

1. Chronic, non healing, post surgical wound over the right dorsal aspect of foot.
2. Offensive odor from the wound.
3. Burning and throbbing pain.

Treatment history: Patient was already on conservative treatment**.** Surgical incision was performed once, after which wound became complicated and non-healing. Patient then approached for homoeopathic treatment.

Past history: No specific past illness.

Treatment given:

Tridax procumbens Lotion was applied in dressing as an external application B.D

CASE IMAGES:

CONCLUSION: The multifaceted benefits of Tridax procumbens make it a significant plant in medicine. Its potential benefits and applications warrant further investigation and exploration.

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CONFLICT OF INTEREST: The Authors declare no conflict of interest.

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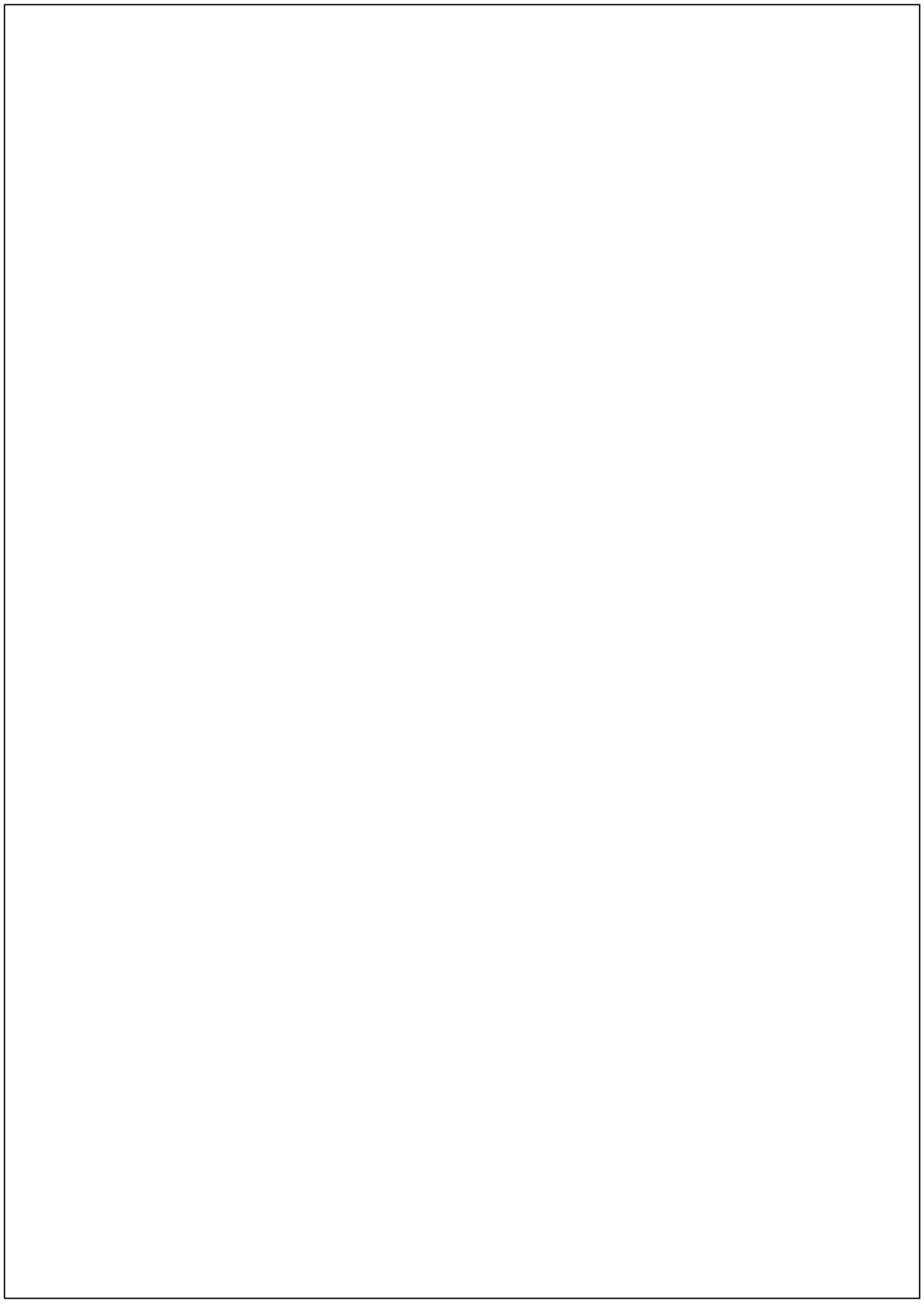

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